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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/892,036	06/26/2001	Juha Matero	324-010442-US(PAR)	1829

2512 7590 09/08/2005

PERMAN & GREEN  
425 POST ROAD  
FAIRFIELD, CT 06824

EXAMINER
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GRAHAM, ANDREW R

ART UNIT	PAPER NUMBER
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2644

DATE MAILED: 09/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/892,036	<b>Applicant(s)</b> MATERO ET AL.	
	<b>Examiner</b> Andrew Graham	<b>Art Unit</b> 2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 15 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-6, 9-17, 20-26, 28-34, 36-42 and 44-51 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 9-17, 20-26, 28-34, 36-42, 44-51 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

Art Unit: 2644

**DETAILED ACTION**

***Response to Amendment***

1. The amendment submitted 6/15/05 has been entered into the case. References made to the claims in this office action reflect this most recently submitted version of the claims.

***Claim Objections***

2. The applicant's amendments made to **Claims 9, 13-15, 28, and 30-32** in view of the previous objections of said claims suffice to overcome the basis of said objections. Accordingly, said objections are hereby withdrawn.

**Claims 48-51** are objected to because each claim begins "The portable device of claim" 20 or 34. Claims 20 and 34, however, are method claims, and thus are not claims directed toward a portable device, as suggested in the preamble to claims 48-51. Appropriate correction is required.

***Response to Arguments***

3. Applicant's arguments with respect to currently pending claim have been considered but are moot in view of the new ground(s) of rejection.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

Art Unit: 2644

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. **Claims 45, 47, 49, and 51** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 45, 47, 49, and 51 each recite "to produce a tone before and after the moment the sudden background noise occurs". The specification discloses "the control means 106 are arranged to produce a tone nonsimultaneously with the moment at which background noise occurs, i.e. at least partly before or after that moment". As such, the concept of producing a tone "before and after", as opposed to "before or after", the noise is not contained in the specification.

5. **Claims 45, 47, 49, and 51** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Related to the particular language of the limitations listed above, **Claims 45, 47, 49, and 51** do not enable a person skilled in the art to make a device that produces a tone before and after a moment of a sudden background noise.

Art Unit: 2644

Appropriate correction and/or clarification is required.

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 1-6, 10-13, 15-16, 20-26, 29-30, 32-33, 36-39, 41, 44-45, and 48-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cuddy (USPN 6246761) in view of of Grothause (USPN 4904992).

Cuddy discloses a system for automatically controlling characteristic of a reproduced tone according to the ambient noise and environment surrounding the tone-reproducing device.

Regarding **Claim 1**, Cuddy teaches:

A portable device (col. 4, lines 12-17) comprising:

control means (24, carries out processes of Figure 3) for controlling the operation of the device (col. 4, lines 49-63);

tone means (comprising 26, 32, 12; Figure 2) that are controlled by the control means and that produce sound (18) electroacoustically (DSP 24 generates a signal, output by 26, 32, 12; col. 6, lines 1-4)

which control means are arranged to give feedback (indication of incoming call) on the operation of the device by using a tone produced by the tone means (generation of signal in response to trigger 22; col. 4, lines 64-67; col. 5, lines 1-9, 29-38; processes 54 and 60 in Figure 3); and

Art Unit: 2644

determining means (comprising 14, 36, 38) for determining the volume of background noise of the usage environment of the device (col. 4, lines 66-67; col. 5, lines 1-3 and 39-46),

on the basis of which background noise volume the control means are arranged to automatically adjust tone features (process steps 52,58; col. 5, lines 1-5 and 25-29) including at least one of a tone frequency and a tone duration that can be sensed by hearing, such that the tone is distinguished from background noise by a human hearing sense ("acoustic properties" of Cuddy include frequency, tone frequency chosen to avoid making by ambient noise; col. 3, lines 63-67; col. 5, lines 46-67).

While the volume, frequency, and cadence of a ring signal may be altered in the system of Cuddy based on the ambient noise, Cuddy does not specify:

- wherein the determining means are arranged to determine the moments at which a sudden background noise of a predetermined duration occurs, and the control means are arranged to produce a tone nonsimultaneously with the moments at which the sudden background noise occurs.

Grothouse teaches a variable message reception indication system for a radio signal-receiving device that automatically adjusts in response to properties of detected ambient noise.

Regarding **Claim 1**, Grothouse particularly specifies:

Art Unit: 2644

the determining means (12,14,18 of Grothause in view of analogous components of Cuddy) are arranged to determine the moments at which a sudden background noise of predetermined duration occurs (input from 12, compared with threshold; detects and indicates signal of at least any non-zero duration that puts average ambient signal level above threshold, col. 2, lines 6-24; col. 3, lines 10-20), and the control means are arranged to produce a tone nonsimultaneously with the moments at which background noise occurs (enunciation output after ambient noise falls below threshold, function performed by controller 18; col. 3, lines 53-60; 'moments' plural, taught at least by looped flowchart of Figure 3).

To one of ordinary skill in the art at the time the invention was made, it would have been obvious to modify the incoming call indication system of Cuddy to include the components taught by Grothause that provide the capability of storing or delaying the output timing of the incoming signal indication. Such delaying or storing means would have been desirable because they would have enabled a user to receive indication of an incoming call without overriding a preferred indication signal format or outputting an audible signal under unfavorable conditions.

Regarding **Claim 2**, Cuddy teaches:

wherein the control means (DSP 24) automatically adjusts the tone frequency (col. 5, lines 6-16) and the duration (upon reception of incoming signal indication, determining continues until answering at

Art Unit: 2644

which point generation, and at least the length of the entire tune, ends; col. 5, lines 33-38).

Regarding **Claim 3**, Cuddy teaches:

wherein the determining means are arranged to determine the volume of background noise at different frequencies (col. 4, lines 1-3; col. 50-67), and the control means are arranged to produce a tone particularly at such frequencies where the volume of background noise is low ("sufficiently different frequency", col. 3, lines 55-67)

Regarding **Claim 4**, Cuddy teaches:

the tone features include tone volume (col. 3, lines 67; col. 4, lines 1-3; col. 5, lines 9-16).

Regarding **Claim 5**, Cuddy teaches:

the control means are arranged to produce a tone that is louder than background noise (col. 5, lines 3-16)

Regarding **Claim 6**, Grothouse teaches:

the tone features include the moment of time at which the tone is produced (enunciation of message reception is delayed, col. 3, lines 53-68).

Regarding **Claim 10**, Cuddy teaches:

wherein the determining means comprise conversion means (14) for performing an acousto-electric conversion for background noise and the control means (col. 4, lines 39-42 and 66-67; col. 5, line 1), which control means are arranged to determine the volume of background noise by analyzing an electric signal representing background noise (process 50; col. 5, lines 43-46).

Art Unit: 2644

Regarding **Claim 11**, Cuddy teaches:

wherein the conversion means are a microphone (12) (col. 3, lines 39-42).

Regarding **Claim 12**, Cuddy teaches:

wherein the tone means are a loudspeaker or a piezoelectricity functioning circuit (output transducer 12 is loudspeaker by virtue of sound being heard at least over distance involved with muffling environment 16; Figure 1; col. 7, lines 27-29 and 46-50).

Regarding **Claim 13**, Cuddy teaches:

wherein the control means are arranged to receive a control (indication of answering) relating to at least one of the tone features that can be sensed by a human hearing sense (answering is a result of user detection of ringing tone) and controlling the tone production carried out by the user interface of the portable device (ending of subsequent testing and optimizing; col. 5, lines 33-38).

Regarding **Claim 15**, Cuddy teaches:

those tone durations that are automatically selectable for the control means are selected by the control (upon answering, determining continues until answering at which point generation, and at least the length of the entire tune, ends; col. 5, lines 33-38).

Regarding **Claim 16**, Cuddy teaches:

wherein the portable device is a subscriber terminal of a telecommunication system (col. 4, lines 13-17).

Regarding **Claim 20**, Cuddy in view of Grothouse teaches:

Art Unit: 2644

A method of providing a user with information on the operation of a portable device, the method comprising:

detecting an event that interests the user and concerns the operation of the device (detection on incoming call by microprocessor that results in call signal 22; col. 4, lines 31-34 and 64-65 of Cuddy)

determining the volume of background noise in the usage environment of the device (process 50; col. 5, lines 39-46 of Cuddy)

determining the moments at which a sudden background noise of a predetermined period duration occurs ("yes" option of 56, col. 3, lines 44-68 of Grothause; duration of signal is at least non-zero, as is necessary for detection in step 52 and update then threshold comparison of ambient average in steps 54 and 56 of Grothause)

adjusting automatically tone features including at least one of a tone frequency and a tone duration that can be sensed by hearing such that the tone is distinguished from background noise by a human hearing sense (col. 5, lines 3-5 and 10-16);

producing a tone nonsimultaneously with the moments at which the sudden background noise occurs ("no" option of 56 after cycling through 66, col. 3, lines 53-60 and Figure 3 of Grothause); and

giving feedback on the operation of the device by using the tone (output of ringing tone, process 60; col. 5, lines 29-33 of Cuddy).

Regarding **Claim 21**, please refer to the above rejection of the similar limitations of Claim 2.

Art Unit: 2644

Regarding **Claim 22**, please refer to the above rejection of the similar limitations of Claim 3.

Regarding **Claim 23**, please refer to the above rejection of the similar limitations of Claim 4.

Regarding **Claim 24**, please refer to the above rejection of the similar limitations of Claim 5.

Regarding **Claim 25**, please refer to the above rejection of the similar limitations of Claim 6.

Regarding Claim 26, please refer to the above rejection of the similar limitations of Claim 20, noting that the detection of signals of non-zero durations in step 52 include those of single sampling or "short" durations, wherein the amplitude suffices to impart an average greater than the established threshold.

Regarding **Claim 29**, please refer to the above rejection of the similar limitations of Claim 10.

Regarding **Claim 30**, please refer to the above rejection of the similar limitations of Claim 13.

Regarding **Claim 32**, please refer to the above rejection of the similar limitations of Claim 15.

Regarding **Claim 33**, please refer to the above rejection of the similar limitations of Claim 16.

Regarding **Claim 36**, Cuddy teaches:

further comprising means for determining a frequency range of the background noise (col. 5, lines 43-46 and 50-57), wherein the control means is adapted to automatically adjust the tone to be in a frequency

Art Unit: 2644

range that is inverse to the frequency range of the background noise (col. 3, lines 63-67).

Regarding **Claim 37**, Cuddy teaches:

wherein if a frequency range of the background noise is determined to be low, a frequency range of the tone is adjusted to be high (frequency sufficiently different from that of ambient noise is selected, col. 3, lines 63-67; ranges of ambient noise frequency characteristics are consulted, col. 5, lines 50-57; selected frequency is inherently in the audible frequency range).

Regarding **Claim 38**, please refer to the above rejection of the similar limitations of Claim 36.

Regarding **Claim 39**, Grothause teaches:

determining duration of the background noise (by virtue of storing or delaying until threshold not exceeded; col. 53-57; looping per threshold, Figure 3)

if the duration is short, producing the tone a predetermined period after and end of the duration of the background noise (delays until threshold exceeded, col. 3, lines 53-60).

Regarding **Claim 41**, Cuddy teaches:

wherein the determining means are arranged to determine the volume of background noise at different frequencies (col. 4, lines 1-3; col. 50-67), and the control means are arranged to produce a tone particularly at such frequencies where the volume of background noise is low ("sufficiently different frequency", col. 3, lines 55-67).

Art Unit: 2644

Regarding **Claim 44**, the system of Grothouse effectively detects a noise condition based on an average loudness being above a given threshold (col. 3, lines 36-49). The average is based on ongoing sampling of the input signal from the microphone 12 (col. 2, lines 6-13; col. 3, lines 30-36). Such an above-threshold average corresponds to a variety of sampling scenarios, ranging from a single, high-amplitude sample to continuous samples equal or greater than the threshold value. The signals represented by such samplings, particularly those that involve a minimal number of above-threshold samples, but cause the ambient average to be above the given threshold, read on "the predetermined duration is a short duration".

Regarding **Claim 45**, Grothouse particularly specifies: the sudden background noise of a predetermined duration occurs regularly (partial operation of plant manager in manufacturing environment and partially in office environment; "day-today" working in both reads on "regularly", col. 2, lines 55-66),

and the control means are arranged to produce a tone at least before and after the moment the sudden background noise occurs (enabled by flow of operations shown in Figure 3; call reception 50 in which the result of 56 is no, followed by call reception 50 in which the result of 56 is "yes", the two resulting instances of step 60 read on "before and after" the condition that causes the "yes" result in the above exemplary sequence; col. 3, lines 30-68)

Art Unit: 2644

Regarding **Claims 48 and 49** please refer to the grounds cited above in the rejection of the similar limitations of Claims 44 and 45, respectively.

7. **Claims 1, 2, 6, 9, 20, 21, 25-26, 28, 39-40, 44-45, and 48-49** are rejected under 35 U.S.C. 103(a) as being unpatentable over Cannon et al (USPN 6269257) in view of Grothause. Hereafter, "Cannon et al" will be referred to as "Cannon".

Cannon discloses a system for adjusting the paging signal emitted from a portable handset of a telephone on the basis of a variety of conditions.

Specifically regarding **Claim 1**, Cannon teaches:

A portable device (109; col. 2, lines 49-57) comprising:  
control means (circuitry of 117 that executes condition responsive function) for controlling the operation of the device (col. 3, lines 24-31);

tone means (113) that are controlled by the control means and that produce sound electroacoustically (col. 2, lines 54-57; col. 3, lines 20-22)

which control means are arranged to give feedback (indication of paging signal) on the operation of the device by using a tone produced by the tone means (generation of altering signal in response to pressing of page key; col. 2, lines 51-62); and

determining means (comprising 131,133) for determining the volume of background noise of the usage environment of the device (col. 5,

Art Unit: 2644

lines 4-17; at least volume of ambient noise is measure by virtue of capability of raising alerting signal volume to exceed ambient sound in volume),

on the basis of which background noise volume the control means are arranged to automatically adjust tone features including at least one of a tone frequency and a tone duration that can be sensed by hearing (pitch is property of sound determined by frequency of received sound; col. 5, lines 18-19; dictionary definition (from Merriam Webster Online) particularly defines pitch as highness or lowness of sound), such that the tone is distinguished from background noise by a human hearing sense (pitch is made to be non-overlapping; col. 5, lines 18-21).

While the frequency of a ring signal may be altered in the system of Cannon based on the ambient noise, Cannon does not specify:

- wherein the determining means are arranged to determine the moments at which a sudden background noise of a predetermined duration occurs, and the control means are arranged to produce a tone nonsimultaneously with the moments at which the sudden background noise occurs.

Grothouse teaches a variable message reception indication system for a radio signal-receiving device that automatically adjusts in response to properties of detected ambient noise.

Regarding **Claim 1**, Grothouse particularly specifies:

Art Unit: 2644

the determining means (12,14,18 of Grothause in view of analogous components of Cannon) are arranged to determine the moments at which a sudden background noise of predetermined duration occurs (input from 12, compared with threshold; detects and indicates signal of at least any non-zero duration that puts average ambient signal level above threshold, col. 2, lines 6-24; col. 3, lines 10-20), and the control means are arranged to produce a tone nonsimultaneously with the moments at which background noise occurs (enunciation output after ambient noise falls below threshold, function performed by controller 18; col. 3, lines 53-60; 'moments' plural, taught at least by looped flowchart of Figure 3).

To one of ordinary skill in the art at the time the invention was made, it would have been obvious to modify the page indication system of Cannon to include the components taught by Grothause that provide the capability of storing or delaying the output timing of the incoming signal indication. Such delaying or storing means would have been desirable because they would have enabled a user to receive indication of an incoming call without overriding a preferred indication signal format or outputting an audible signal under unfavorable conditions.

Regarding **Claim 2**, Cannon teaches:

the control means (117) automatically adjusts the tone frequency ("pitch") and the duration ("any combination" of characteristic, including pitch and duration, col. 4, lines 33-45; col. 5, lines 4-7)

Regarding **Claim 6**, Grothause teaches:

Art Unit: 2644

the tone features include the moment of time at which the tone is produced (enunciation of message reception is delayed, col. 3, lines 53-68).

Regarding **Claim 9**, Cannon teaches:

the control means are arranged to form a tone from notes (output tone is at least note, repeated use equates to notes) and

to make the individual notes sound longer when background noise is getting louder (desirable for paging volume to be greater than ambient noise volume, col. 5, lines 16-17; volume of paging signal increases proportionately with length of time button is pressed, at least until user can hear signal, col. 5, lines 50-55).

Regarding **Claim 20**, please refer to the above rejection of the similar limitations of Claim 1, noting the function performed by the components cited therein.

Regarding **Claim 21**, please refer to the above rejection of the similar limitations of Claim 2.

Regarding **Claim 25**, please refer to the above rejection of the similar limitations of Claim 6.

Regarding **Claim 26**, please refer to the above rejection of the similar limitations of Claim 20, noting that the detection of signals of non-zero durations in step 52 include those of single sampling or "short" durations, wherein the amplitude suffices to impart an average greater than the established threshold.

Regarding **Claims 28 and 40**, please refer to the above rejection of the similar limitations of Claim 9.

Art Unit: 2644

Regarding **Claim 39**, Grothause teaches:

determining duration of the background noise (by virtue of storing or delaying until threshold not exceeded; col. 53-57; looping per threshold, Figure 3)

if the duration is short, producing the tone a predetermined period after and end of the duration of the background noise (delays until threshold exceeded, col. 3, lines 53-60).

Regarding **Claim 44**, the system of Grothause effectively detects a noise condition based on an average loudness being above a given threshold (col. 3, lines 36-49). The average is based on ongoing sampling of the input signal from the microphone 12 (col. 2, lines 6-13; col. 3, lines 30-36). Such an above-threshold average corresponds to a variety of sampling scenarios, ranging from a single, high-amplitude sample to continuous samples equal or greater than the threshold value. The signals represented by such samplings, particularly those that involve a minimal number of above-threshold samples, but cause the ambient average to be above the given threshold, read on "the predetermined duration is a short duration".

Regarding **Claim 45**, Grothause particularly specifies:

the sudden background noise of a predetermined duration occurs regularly (partial operation of plant manager in manufacturing environment and partially in office environment; "day-today" working in both reads on "regularly", col. 2, lines 55-66),

and the control means are arranged to produce a tone at least

Art Unit: 2644

before and after the moment the sudden background noise occurs (enabled by flow of operations shown in Figure 3; call reception 50 in which the result of 56 is no, followed by call reception 50 in which the result of 56 is "yes", the two resulting instances of step 60 read on "before and after" the condition that causes the "yes" result in the above exemplary sequence; col. 3, lines 30-68)

Regarding **Claims 48 and 49** please refer to the grounds cited above in the rejection of the similar limitations of Claims 44 and 45, respectively.

8. **Claims 17, 34, 39, 42, 46-47, and 50-51** are rejected under 35 U.S.C. 103(a) as being unpatentable over Makela et al (FI 960858 B) in view of Grothause. Hereafter, "Makela et al" will be referred to as "Makela" and citations will be made to USPN 6501967, which is the U.S. application of Finnish application FI 960858 B.

Makela teaches a system for defining the ring tones of a telephone.

Regarding **Claim 17**, Makela teaches:

A portable device (col. 3, lines 2-5) comprising:

control means (11) for controlling the operation of the device (col. 5, lines 32-36 and 43-61);

a user interface (10) in connection with the control means (col. 6, lines 45-51; Figure 4);

Art Unit: 2644

tone means (4) that are controlled (by 16 via 15) by the control means (11) and that produce sound electroacoustically (col. 5, lines 47-56)

which control means are arranged to give feedback (notification of incoming call) on the operation of the device by using a tone produced by the tone means (col. 5, lines 40-47); and

the control means (11) are arranged to receive a control affecting at least one of a tone frequency and a tone duration (col. 4, lines 29-42; col. 6, lines 40-51) and controlling the tone production carried out by the user interface (col. 6, lines 45-51), and to adjust the at least one of a tone frequency and a tone duration according to the control (for example, col. 5, lines 2-7 and 16-19)

While Makela teaches that a user's input may be used to control a ringing tone to be heard by the user during operation of the device, Makela does not clearly specify:

- a determining means for determining the background noise of the usage environment of the device
- wherein the determining means are arranged to determine the moments at which a sudden background noise of a predetermined duration occurs, and the control means are arranged to produce a tone nonsimultaneously with the moments at which the sudden background noise occurs

Grothouse teaches a variable message reception indication system for a radio signal-receiving device that automatically adjusts in response to properties of detected ambient noise.

Art Unit: 2644

Regarding **Claim 17**, Grothause particularly specifies:

a determining means (12,14,18) for determining the background noise of the usage environment of the device (microphone, amplifier and controller receive input signals for ambient sound determination 52, col. 2, lines 6-24)

the determining means (12,14,18 of Grothause in view of analogous components of Makela) are arranged to determine the moments at which a sudden background noise of predetermined duration occurs (input from 12, compared with threshold; detects and indicates signal of at least any non-zero duration that puts average ambient signal level above threshold, col. 2, lines 6-24; col. 3, lines 10-20), and the control means are arranged to produce a tone nonsimultaneously with the moments at which background noise occurs (enunciation output after ambient noise falls below threshold, function performed by controller 18; col. 3, lines 53-60; 'moments' plural, taught at least by looped flowchart of Figure 3).

To one of ordinary skill in the art at the time the invention was made, it would have been obvious to modify the ring tone indication system of Makela to include the components taught by Grothause that provide the capability of storing or delaying the output timing of the incoming signal indication. Such delaying or storing means would have been desirable because they would have enabled a user to receive indication of an incoming call without overriding a preferred indication signal format, such as the designated ring tone, or outputting an audible signal under unfavorable conditions.

Art Unit: 2644

Regarding **Claim 34**, please refer to the above rejection of the similar limitations of Claim 17, noting the function of the components cited therein.

Regarding **Claim 39**, Grothause teaches:

determining duration of the background noise (by virtue of storing or delaying until threshold not exceeded; col. 53-57; looping per threshold, Figure 3)

if the duration is short, producing the tone a predetermined period after and end of the duration of the background noise (delays until threshold exceeded, col. 3, lines 53-60).

Regarding **Claim 42**, Makela teaches:

wherein the control affects and adjusts both the tone frequency and duration (col. 4, lines 33-42).

Regarding **Claim 46**, the system of Grothause effectively detects a noise condition based on an average loudness being above a given threshold (col. 3, lines 36-49). The average is based on ongoing sampling of the input signal from the microphone 12 (col. 2, lines 6-13; col. 3, lines 30-36). Such an above-threshold average corresponds to a variety of sampling scenarios, ranging from a single, high-amplitude sample to continuous samples equal or greater than the threshold value. The signals represented by such samplings, particularly those that involve a minimal number of above-threshold samples, but cause the ambient average to be above the given threshold, read on "the predetermined duration is a short duration".

Regarding **Claim 47**, Grothause particularly specifies:

Art Unit: 2644

the sudden background noise of a predetermined duration occurs regularly (partial operation of plant manager in manufacturing environment and partially in office environment; "day-today" working in both reads on "regularly", col. 2, lines 55-66),

and the control means are arranged to produce a tone at least before and after the moment the sudden background noise occurs (enabled by flow of operations shown in Figure 3; call reception 50 in which the result of 56 is no, followed by call reception 50 in which the result of 56 is "yes", the two resulting instances of step 60 read on "before and after" the condition that causes the "yes" result in the above exemplary sequence; col. 3, lines 30-68)

Regarding **Claims 50 and 51** please refer to the grounds cited above in the rejection of the similar limitations of Claims 46 and 47, respectively.

9. **Claims 14 and 31** are rejected under 35 U.S.C. 103(a) as being unpatentable over Cuddy in view of Grothause as applied above, and in further view of Lilja (USPN 5844983).

As detailed above, Cuddy discloses a system for automatically controlling characteristic of a reproduced tone according to the ambient noise and environment surrounding the tone-reproducing device. Grothause teaches a variable message reception indication system for a radio signal-receiving device that automatically adjusts in response to properties of detected ambient noise.

Regarding Claim 14, Cuddy in view of Grothause does not specify:

Art Unit: 2644

- those frequency ranges which are automatically selectable for the control means are selected by a control

Lilja teaches a system for controlling a telephone ring signal in regards to amplitude and frequency based on the spectral and amplitude characteristics of ambient sound.

Specifically regarding **Claim 14**, Lilja teaches:

those frequency ranges (subbands) which are automatically selectable for the control means (as "chosen" subband) are selected by a control ("designated" status indicator) (on the basis of the designation, a preferred subband is chosen, unless the noise level is unacceptable; col. 4, lines 1-9)

To one of ordinary skill in the art at the time the invention was made, it would have been obvious to designate and preferably use the designated subband, as taught by Lilja, as part of the appropriate audible characteristic selection process of Cuddy in view of Grothouse. The motivation behind such a modification would have been that such a designation and selection strategy would have enabled the prioritized selection of a preferred output subband for the sufficiently different frequency of Cuddy.

Regarding **Claim 31**, please refer to the above rejection of the similar limitations of Claim 14.

10. **Claims 3 and 22** are rejected under 35 U.S.C. 103(a) as being unpatentable over Cannon in view of Grothouse as applied above, and in further view of Lilja, also applied above, and Pohlmann (Pohlmann, K.

Art Unit: 2644

C. "Principles of Digital Audio", MacGraw-Hill Companies, Inc., 1995. 3<sup>rd</sup> ed. 1995. page 3).

As discussed above, Cannon discloses a system for adjusting the paging signal emitted from a portable handset of a telephone on the basis of a variety of conditions. One of the disclosed conditions includes ambient noise present in the operating environment of the signal emitting device, wherein the pitch of the signal may be adjusted to not overlap with that of ambient noise (col. 5, lines 4-21). Grothouse teaches a variable message reception indication system for a radio signal-receiving device that automatically adjusts in response to properties of detected ambient noise.

As part of the non-overlapping frequencies, Cannon in view of Grothouse does not specify:

- the determining means are arranged to determine the volume of background noise at different frequencies
- the control means are arranged to produce a tone particularly at such frequencies where the volume of background noise is low

Lilja discloses a method of controlling a telephone ring tone in regards to the volume and frequency spectrum of ambient noise.

Specifically regarding **Claim 3**, Lilja teaches:

the determining means (180) are arranged to determine the volume of background noise at different frequencies (input from 180 is applied to DSP 200, wherein power spectrum of signal is determined;

Art Unit: 2644

volume is a relative power level as discussed in further detail below; col. 3, lines 32-63)

the control means are arranged to produce a tone particularly at such frequencies where the volume of background noise is low (col. 4, lines 1-3)

To one of ordinary skill in the art at the time the invention was made, it would have been obvious to utilize the subband power calculations as well as the related subband selection processes of Lilja as part of the circuitry for determining non-overlapping pitch in the system of Cannon in view of Grothause. The motivation behind such a modification would have been that such calculation and decision circuitry would have enabled a frequency band to be selected with the lowest relative noise power. Based on the subband determinations, the selection processes of Lilja would have also enabled a preferred subband to be designated and utilized based on a maximum-noise threshold determination.

As noted above, the subbands of Cuddy in view of Grothause and Lilja, are addressed in terms of power level, rather than volume.

However, the determination of a noise signal's average pressure level is tantamount to determining the average volume level of the signal in the considered frequency bands. As disclosed by Pohlmann, signal amplitude or volume is equivalent to a logarithmic ratio of acoustic or electrical powers (page 3, first paragraph). The denominator of this ratio is equivalent to a reference power, such as the lowest sound pressure level perceivable by humans, which is a

Art Unit: 2644

constant (page 3, second and fourth paragraphs). Accordingly, the sound power determinations of Lilja in view of the amplitude equation of Pohlmann reads on "determine the volume of background noise of different frequencies".

To one of ordinary skill in the art at the time the invention was made, it would have been obvious to address the background signal measurements of the system of Cannon in view of Grothouse and Lilja in terms of amplitude, as is suggested by the equations of Pohlmann. The motivation behind such a modification would have been that addressing the subband signals in terms of amplitude or volume would have made the processing of the values by a user, such as the specification of a noise level for a preferred subband, more wieldy for a user. It is further noted that the processing of Lilja involves relationships between the selected ring signal volume and the ambient noise pressure levels, which further suggests the analogous nature of the two units of measure (col. 4, lines 13-18).

Regarding **Claim 22**, please refer to the above rejection of the similar limitations of Claim 3.

### **Conclusion**


Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 2644

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Graham whose telephone number is 571-272-7517. The examiner can normally be reached on Monday-Friday, 8:30 AM to 5:00 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



VIVIAN CHIN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600

Art Unit: 2644

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*AG*  
Andrew Graham  
Examiner  
A.U. 2644

August 26, 2005